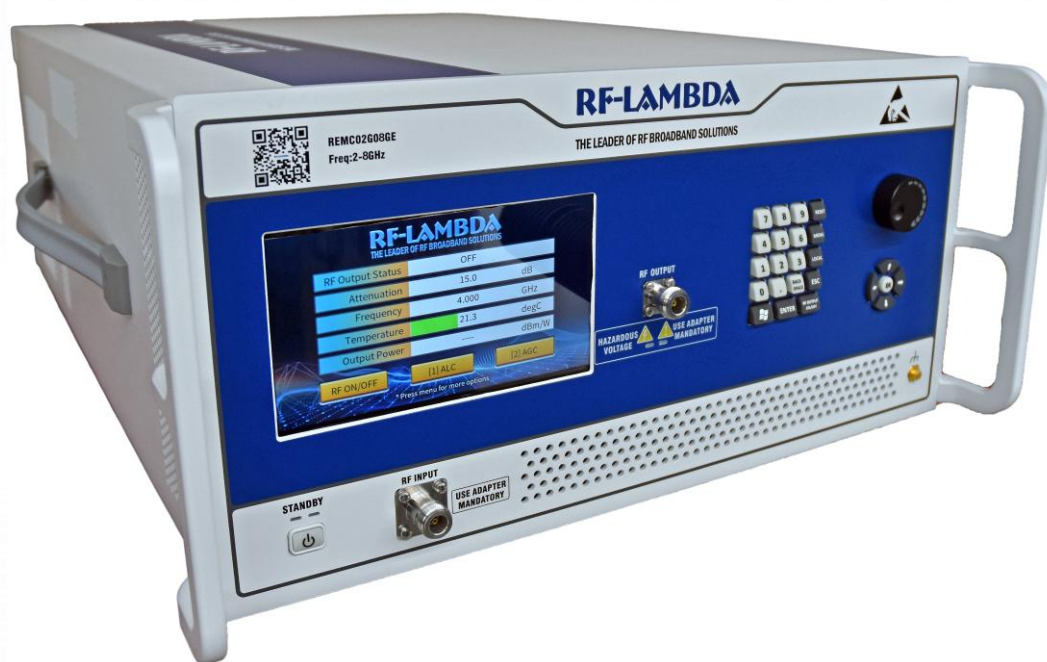


# RF-LAMBDA

THE LEADER OF RF BROADBAND SOLUTIONS

## 450W Wideband EMC Benchtop Power Amplifier 2GHz-8GHz

# REMC02G08GG



Sales: [sales@rflambda.com](mailto:sales@rflambda.com)

Technical: [support@rflambda.com](mailto:support@rflambda.com)

Rev 1. 07-17-2026 | Subject to change without notice

[www.rflambda.com](http://www.rflambda.com)

## PRODUCT SUMMARY

### PRODUCT OVERVIEW

#### GENERAL DESCRIPTION

**REMC02G08GG** is a wideband EMC power amplifier with a frequency range of **2 to 8GHz**.

The power output of this amplifier is **56.5dBm** typical. The typical small signal gain is **68dB** with a flatness of  $\pm 5\text{dB}$ . This performance is achieved through the use of GaN devices. The power amplifier's input connector is **N-Female** and Output connector is **N-Female**. This product has a calibration feature which enables customer to obtain great performance through time and temperature changes. The operating temperature of this product is within  $0^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ .



#### FEATURES

- » Wide band EMC Solid State Power Amplifier
- » Small Signal Gain **65dB** Typical
- » Output Saturation Power **53.5dBm** Typical
- » Supply Voltage **110/220 VAC**
- » 50 Ohm Matched Input / Output
- » Fast RF Blanking – Optional
- » Real Time VSWR measurement
- » Internal Signal Generator – Optional
- » Over temperature Protection
- » Over current Protection
- » Over voltage Protection
- » Auto Calibration

#### TYPICAL APPLICATIONS

- » Wireless Infrastructure
- » Military and Aerospace Applications
- » Test Instrumentation
- » Radar Systems
- » 5G Wireless Communications
- » Microwave Radio Systems
- » TR Modules
- » Research and Development
- » Cellular Base Stations

## TECHNICAL DATA SPECIFICATIONS

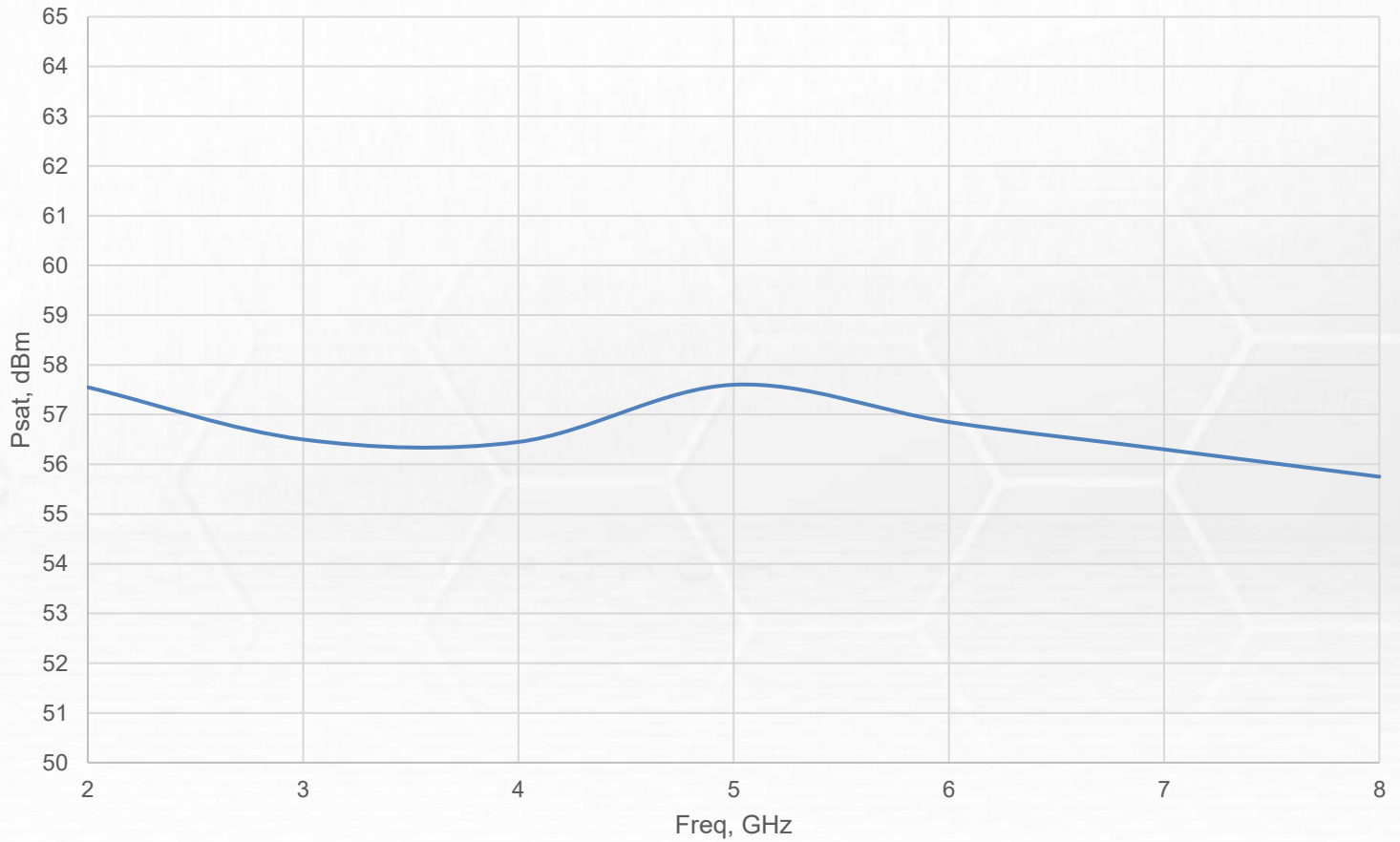
| Parameter                                                                 | Min    | Typ. | Max                              | Min | Typ. | Max | Units |
|---------------------------------------------------------------------------|--------|------|----------------------------------|-----|------|-----|-------|
| Frequency Range                                                           | 2      |      | 6                                | 7   |      | 8   | GHz   |
| Small Signal Gain                                                         |        | 65   |                                  |     | 65   |     | dB    |
| Gain Flatness                                                             |        | ±5   |                                  |     | ±5   |     | dB    |
| Gain Variation Over Temperature<br>(0°C to 50°C)                          |        | ±3   |                                  |     | ±3   |     | dB    |
| Input Return Loss                                                         |        | -15  |                                  |     | -15  |     | dB    |
| Saturated Output Power (Psat)                                             |        | 56.5 |                                  |     | 56   |     | dBm   |
| Power Added Efficiency (PAE)                                              |        | 20   |                                  |     | 20   |     | %     |
| IM3                                                                       |        | 20   |                                  |     | 20   |     | dBc   |
| Output ON/OFF Speed<br>(Toggle Front-End Switch)                          | ON/OFF |      |                                  | 200 |      |     | ns    |
| RF Fast Blanking Speed<br>(Optional)<br>(Mute RF Output signal and noise) | OFF    |      |                                  | 1us |      |     | us    |
| Optional RF Fast Blanking Frequency Max                                   |        |      |                                  | 1   |      |     | KHz   |
| Weight                                                                    |        |      | 90                               |     |      |     | lbs.  |
| Impedance                                                                 |        |      | 50                               |     |      |     | Ohms  |
| Input / Output Connectors                                                 |        |      | N Type Female                    |     |      |     |       |
| *RF Input Power (RFIN)                                                    |        |      | Psat – Large Signal Gain         |     |      |     |       |
| Package                                                                   |        |      | 5U Rack-mount/Tabletop Chassis   |     |      |     |       |
| Cooling System                                                            |        |      | Forced air (self contained fans) |     |      |     |       |
| Supply Voltage                                                            |        |      | 3-Phase 110/220VAC               |     |      |     |       |
| Supply Frequency                                                          |        |      | 47 to 63                         |     |      |     | Hz    |
| Max Supply Power at Psat                                                  |        |      | 3200                             |     |      |     | W     |

\*Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves.

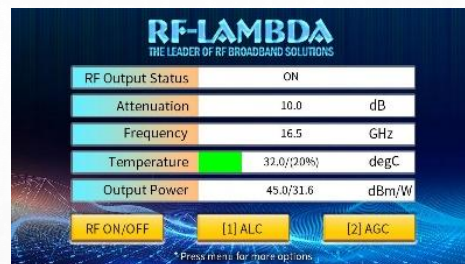
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## TYPICAL PERFORMANCE PLOT

Psat. Vs. Freq



## INSTRUCTIONS FOR USE



Please follow the instructions on the front panel LCD screen after switching on the power. Press “1” on keypad to continue.

*Please follow the instructions.*

| Name             | Description                                                       |
|------------------|-------------------------------------------------------------------|
| RF Output Status | Indicates instrument RF output status. It will display: ON or OFF |
| Attenuation      | RF output attenuation (change with adjustment knob)               |
| Frequency        | RF input signal frequency (For illustrative purposes only)        |
| Temperature      | Instrument temperature (For illustrative purposes only)           |
| Output Power     | Instrument RF output power (For illustrative purposes only)       |
| RF ON/OFF        | Switches On or Off for instrument RF output port                  |
| ALC              | ALC mode, Automatic Loop Control (optional)                       |
| AGC              | AGC mode, Automatic Gain Control (optional)                       |

## QUALITY STANDARDS



### ESD Policy

[https://rflambda.com/pdf/rflambda\\_esd\\_control.pdf](https://rflambda.com/pdf/rflambda_esd_control.pdf)

### Random Vibration Test Standard

[https://www.rflambda.com/pdf/rflambda\\_random\\_vibration\\_MIL-STD-202G.pdf](https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf)

### Connector Torque Specifications

[https://www.rflambda.com/pdf/Torque\\_Specifications.pdf](https://www.rflambda.com/pdf/Torque_Specifications.pdf)

| Parameter                | Description                                                                                 |
|--------------------------|---------------------------------------------------------------------------------------------|
| Operational Temperature  | 0°C to +50°C<br>(Ambient Temperature)                                                       |
| Thermal Shock            | 40°C → +85°C<br>(5 Cycles / 10 hours, Only internal modules tested prior to final assembly) |
| *Random Vibration        | MIL-STD-202G, Table 214-I, Test Condition Letter C, 1.5 Hours Per Axis                      |
| High Temperature Burn In | Temperature +50°C for 72 Hours                                                              |
| Storage Temperature      | 0°C to +125°C                                                                               |

\*For vibration testing details please see additional information section.

RF-Lambda is ISO: 9000 certified with 25,000 ft<sup>2</sup> combined R&D and production space, including an ISO7 10K Clean Room to meet ISO-14644-1.

## PRODUCT FUNCTIONS



### EMC Functions

- Output Power Lock
- Automatic Calibration

### Local/Remote Control Toggle

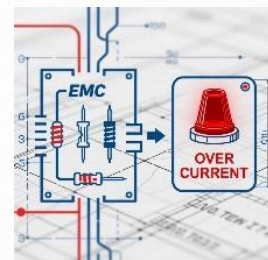
Remote Control



Select control mode:  
Local (direct) or Remote (network)

### Mode Selections

- Local
- Remote Control

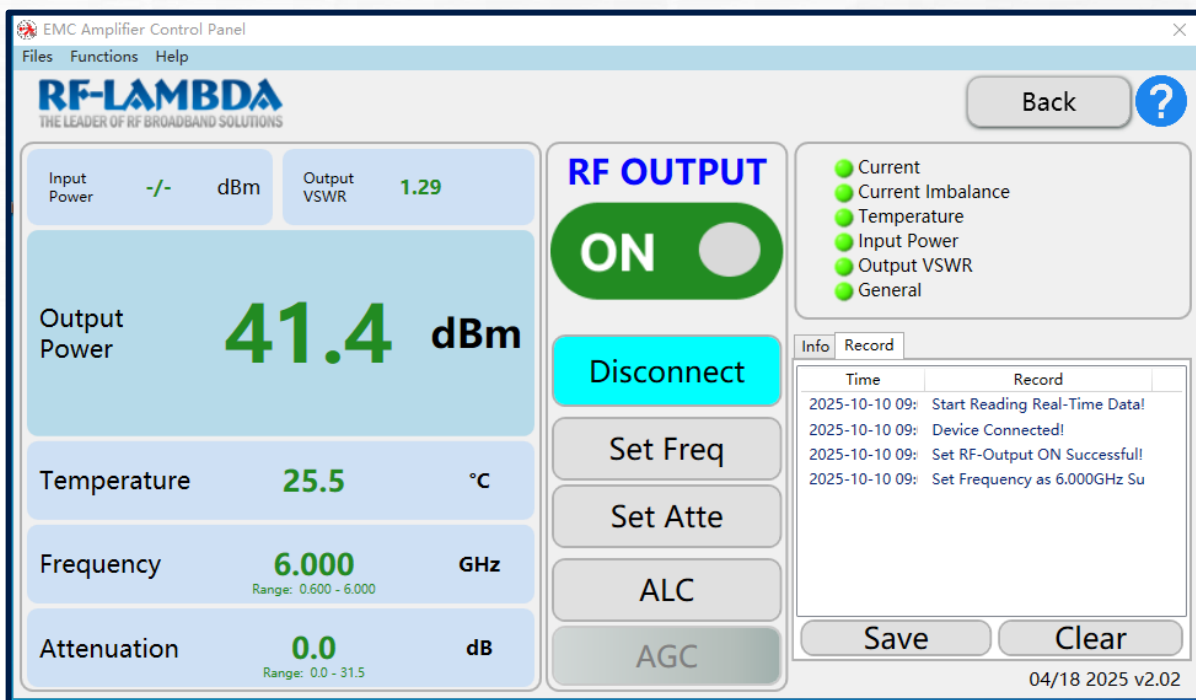
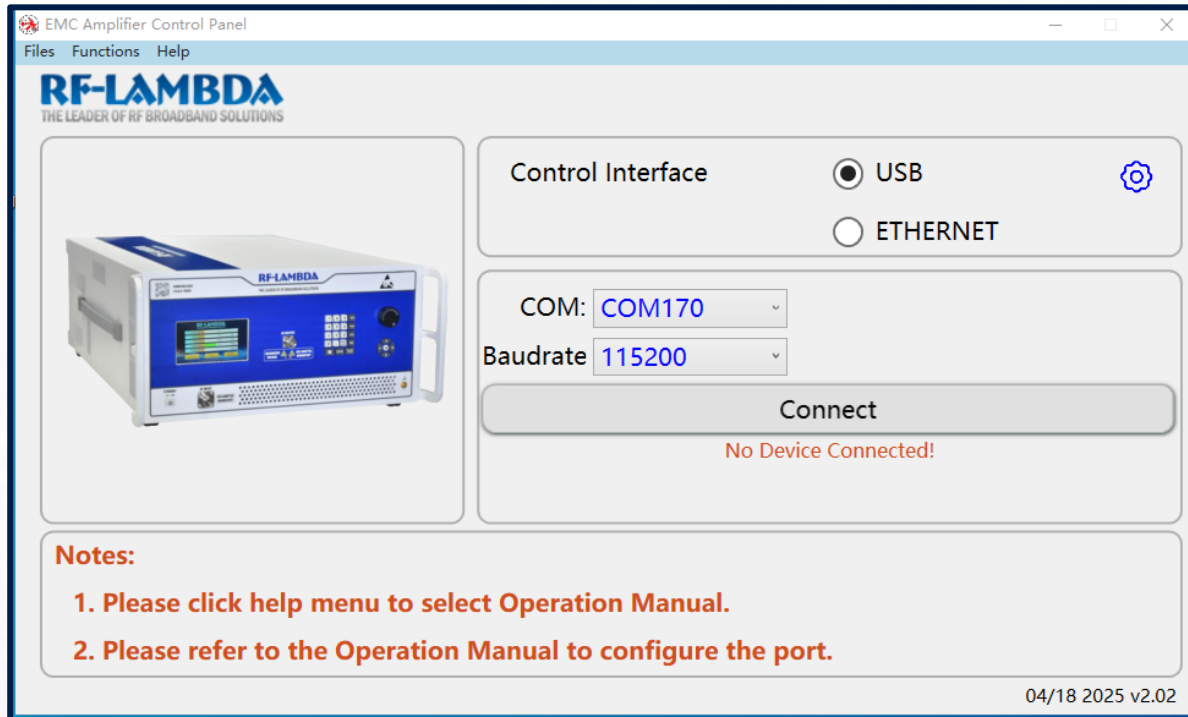


### Product Safety Interlock

- Input Power Overload Protection
- Output Mismatch Protection
- Over temperature Protection
- Over current Protection
- Cooling System Anomaly Protection

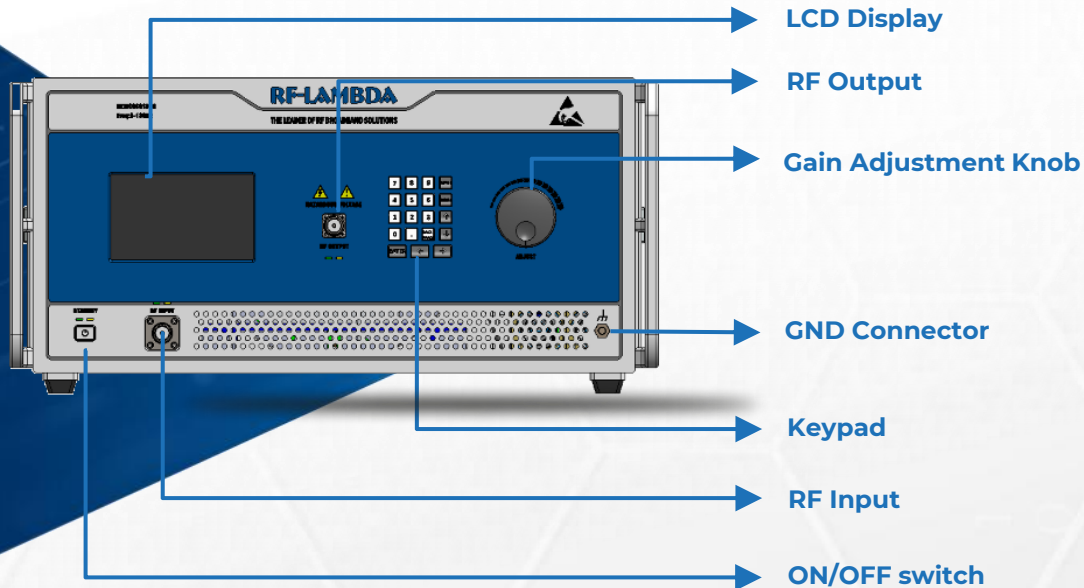
| Category                     | Function                                     | Included                            | Optional (Licensing)                | Optional (Hardware)                 | NOT Applicable           |
|------------------------------|----------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| Product Safety Interlock     | Input Overload Protection                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Output VSWR Protection                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Current Overload Protection                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Temperature Protection                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Current Imbalance Protection                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Overvoltage and Undervoltage Protection      | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | AC Power Abnormality Protection              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Fan Abnormality Protection                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| User Operation Functions     | USB, LAN Communication                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | DB Interface                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Self-Calibration Function                    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Gain Compensation Over Temperature           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Current Compensation Over Temperature        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | TDD Control - RF Switch Enable               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | TDD Control - Positive Voltage Enable        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | TDD Control - Negative Voltage Enable        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | GUI Interface                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Parameter Setting                            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Gain Calibration Each Stage                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Software ON/OFF Function                     | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Modularized System Integration               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Remote Software Control ON/OFF               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Rotary Gain Adjustment                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Screen Protection Function                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
| EMC Functions                | Touch Screen Display                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Developer Interface                          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | System Log Recording                         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | Output VSWR Measurement                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| User Customization Functions | Input Power Measurement                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
|                              | ALC - Automatic Loop Control Gain            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | AGC - Automatic Gain Control Function        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Input Circulator Protection (Internal Load)  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Output Circulator Protection (Internal Load) | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Waveguide Adapter (E-H)                      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Fast RF Blanking                             | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Single Frequency Output                      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Internal Signal Generator    | Frequency Auto Sweeping                      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | Frequency Hopping                            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|                              | External Signal                              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## REMOTE CONTROL

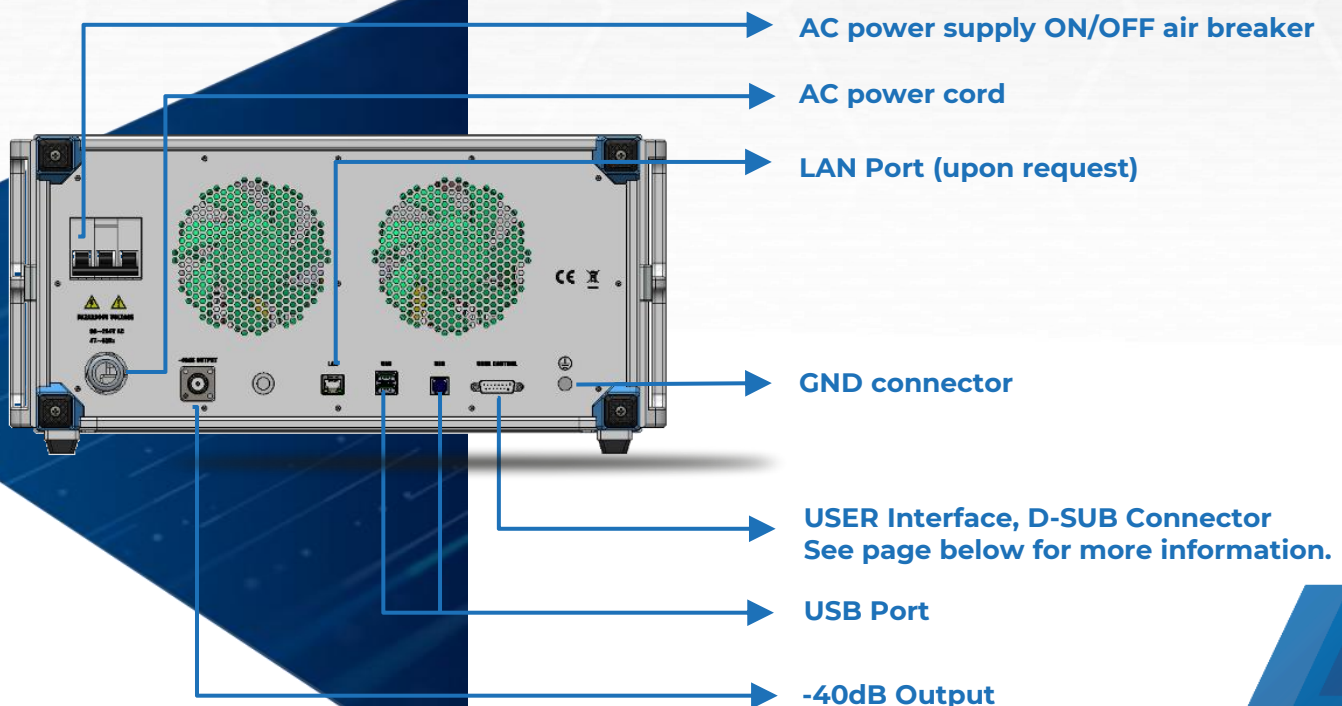


## INTERFACE DESCRIPTION

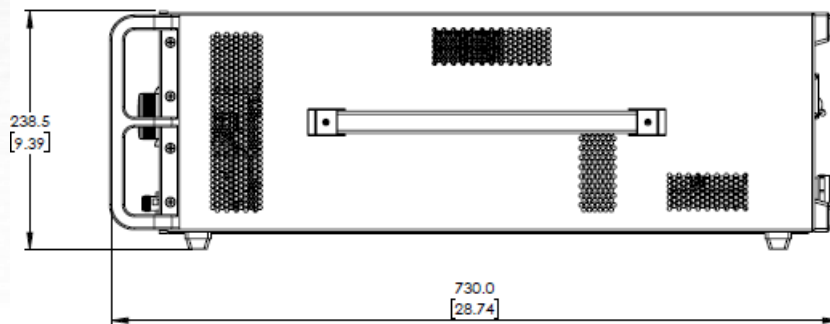
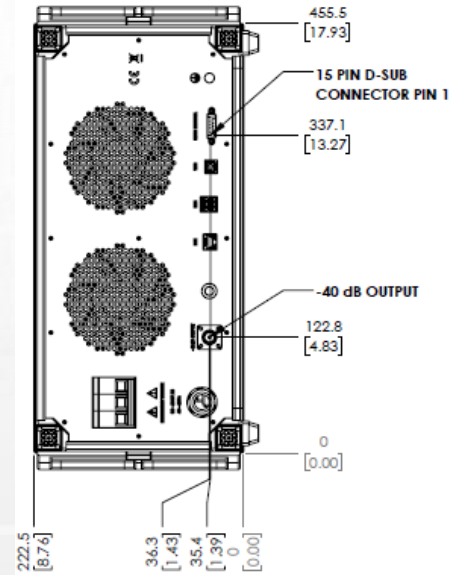
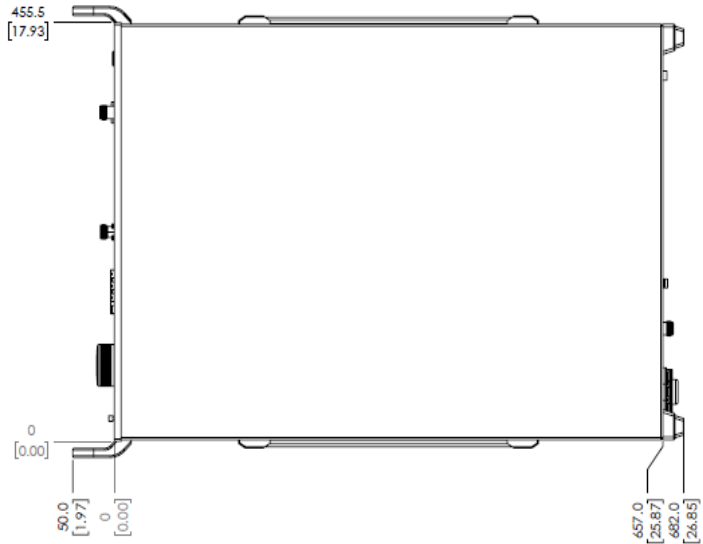
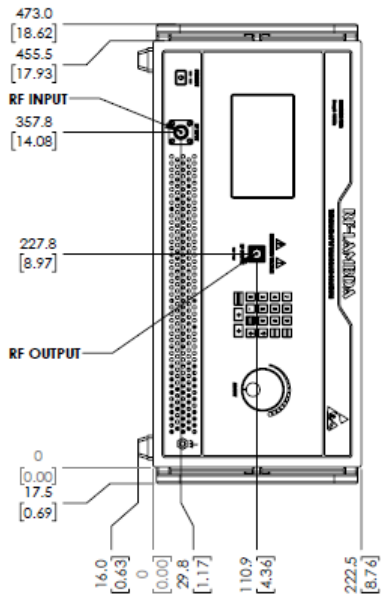
### FRONT PANEL



### REAR PANEL



## OUTLINE DRAWING

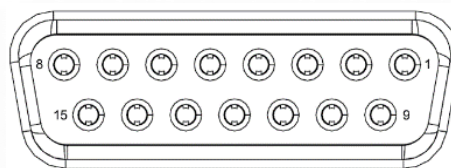


### Notes:

1. Package Material: Aluminum
2. Finish: White Baking Paint
3. All dimensions are in millimeters [inches].
4. Standard torque wrench must be used to secure RF connectors.

## PROTECTION CONNECTOR TABLE

Female D-Sub is on the housing  
The mating male part number: 172-E15-203R001



| Pin # | Name                   | Function     | Initial State | Description                                                                                                      | Applied |
|-------|------------------------|--------------|---------------|------------------------------------------------------------------------------------------------------------------|---------|
| 1     | Reset                  | Control      | HIGH          | Resets PA when logic <u>LOW</u> is applied and released                                                          | Yes     |
| 2     | Gate Disable           | Control      | LOW           | Applying logic <u>HIGH</u> disables gate of amplifiers                                                           | Yes     |
| 3     | Drain Disable          | Control      | LOW           | Applying logic <u>HIGH</u> disables drain of amplifiers                                                          | Yes     |
| 4     | RF Input Over Drive    | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when input signal is over limit                                         | Yes     |
| 5     | Temp Over              | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when amplifier is driven over temperature                               | Yes     |
| 6     | Current Over           | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when drain current limit is reached                                     | Yes     |
| 7     | Current Imbalance      | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when an imbalance in the drain current of the combining branches occurs | Yes     |
| 8     | PA Off Alarm           | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when any of the protection limit is reached                             | Yes     |
| 9     | Fan Alarm              | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when Fan limit is reached                                               | Yes     |
| 10    | RF Input Switch        | Control      | LOW           | Applying logic <u>HIGH</u> turns RF switch to load path                                                          | Yes     |
| 11    | VSWR                   | Indicator    | LOW           | Pin will be latched to logic <u>HIGH</u> when output reflection is over limit                                    | Yes     |
| 12    | Fixed Attenuation 5dB  | Control      | LOW           | Applying logic <u>HIGH</u> enables 5dB attenuation                                                               | NO      |
| 13    | Fixed Attenuation 10dB | Control      | LOW           | Applying logic <u>HIGH</u> enables 10dB attenuation                                                              | NO      |
| 14    | +5V                    | Power Supply | +5V           | +5V DC is available for reference                                                                                | Yes     |
| 15    | GND                    | Ground       | GND           | Ground                                                                                                           | Yes     |

### Notes:

- HIGH/LOW voltages are standard TTL signals 0.0V-0.8V = LOW. 2V-5V = HIGH. Input current is 10uA.
- Matching connector and cable will be shipped with the product.
- Applied=Yes means the feature is included. Applied=No means the feature is not included with this model.
- 5V reference supply can source 250mA.
- Indicator output signals can source 24mA.

## PACKING LIST



Each amplifier is shipped in a well protected package.

## ORDERING INFORMATION

| Part Number | Modification                                      | Description                                    |
|-------------|---------------------------------------------------|------------------------------------------------|
| REMC02G08GC | Input connector<br>and Output connector: N-Female | 2GHz-8GHz 60W<br>EMC Benchtop Power Amplifier  |
| REMC02G08GD | Input connector<br>and Output connector: N-Female | 2GHz-8GHz 100W<br>EMC Benchtop Power Amplifier |
| REMC02G08GF | Input connector<br>and Output connector: N-Female | 2GHz-8GHz 200W<br>EMC Benchtop Power Amplifier |
| REMC02G08GG | Input connector<br>and Output connector: N-Female | 2GHz-8GHz 400W<br>EMC Benchtop Power Amplifier |

## AMPLIFIER USE

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

### **Power Supply Requirements**

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

### **What is not covered with warranty?**

Each RF - Lambda amplifier will go through power and temperature stress testing. Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

## IMPORTANT NOTICE

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.